



## **Cash Management Overview**

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# Outline

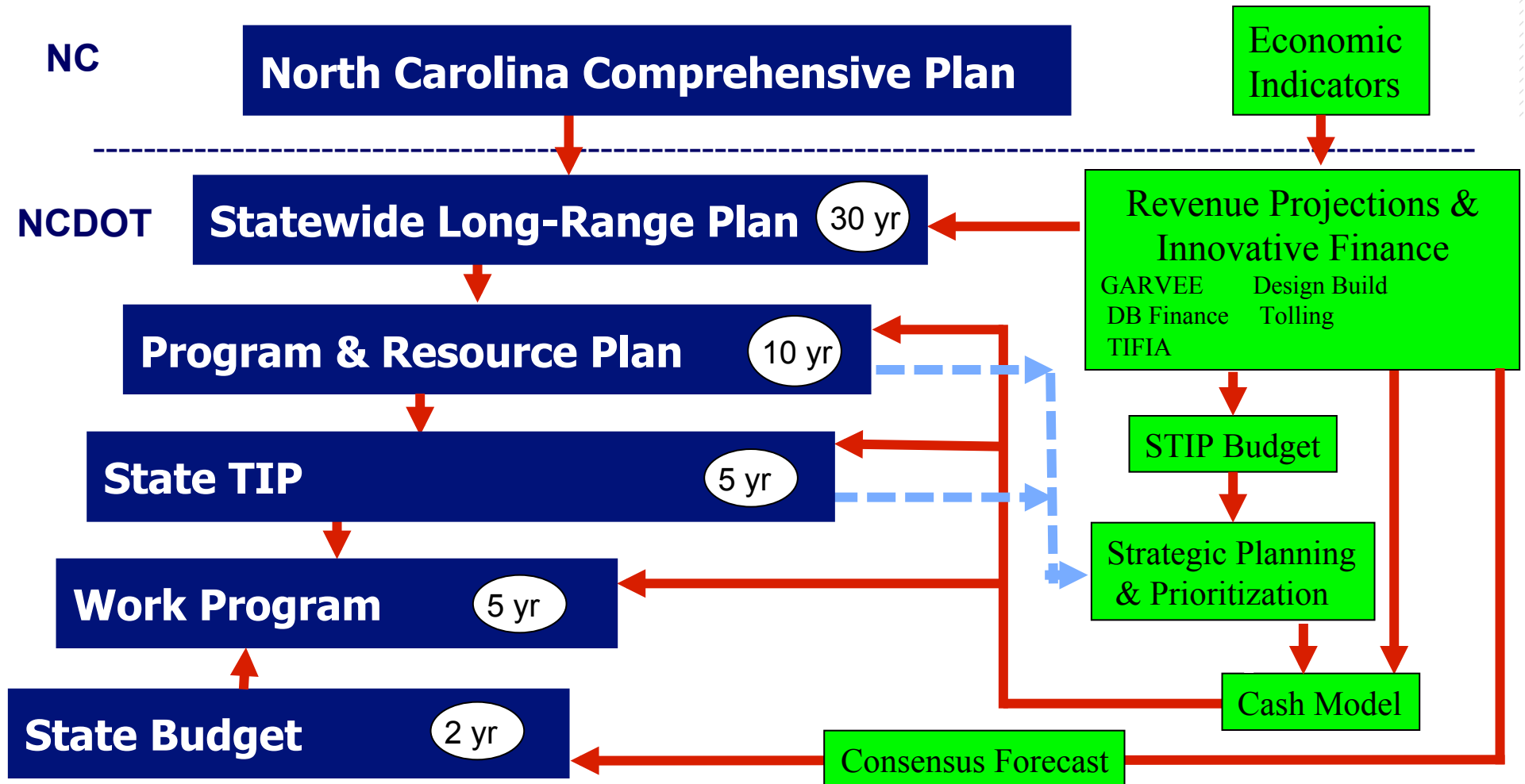
How Does it all fit Together

Overview

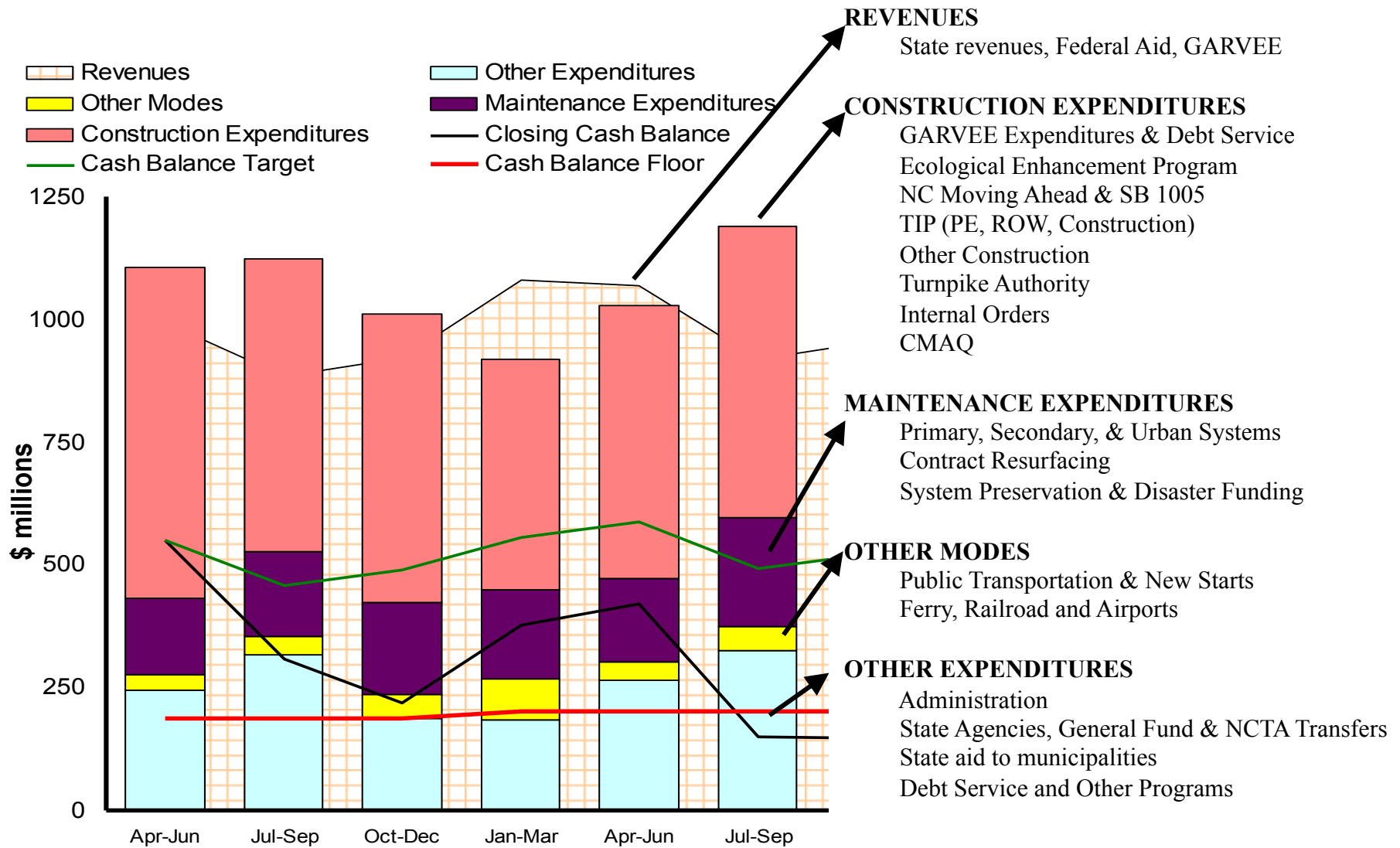
Cash Models

- Revenue – (Previously Covered)
- Construction – Future and Current Project Payouts
- Maintenance – Payout Curves
- Modal
- Other Expenditures

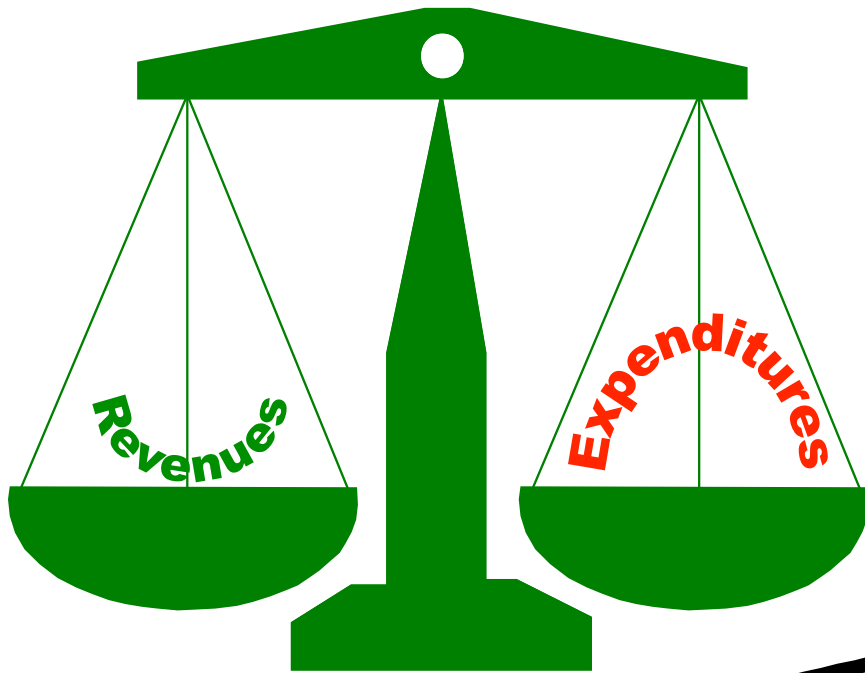
# How Does it All Fit Together



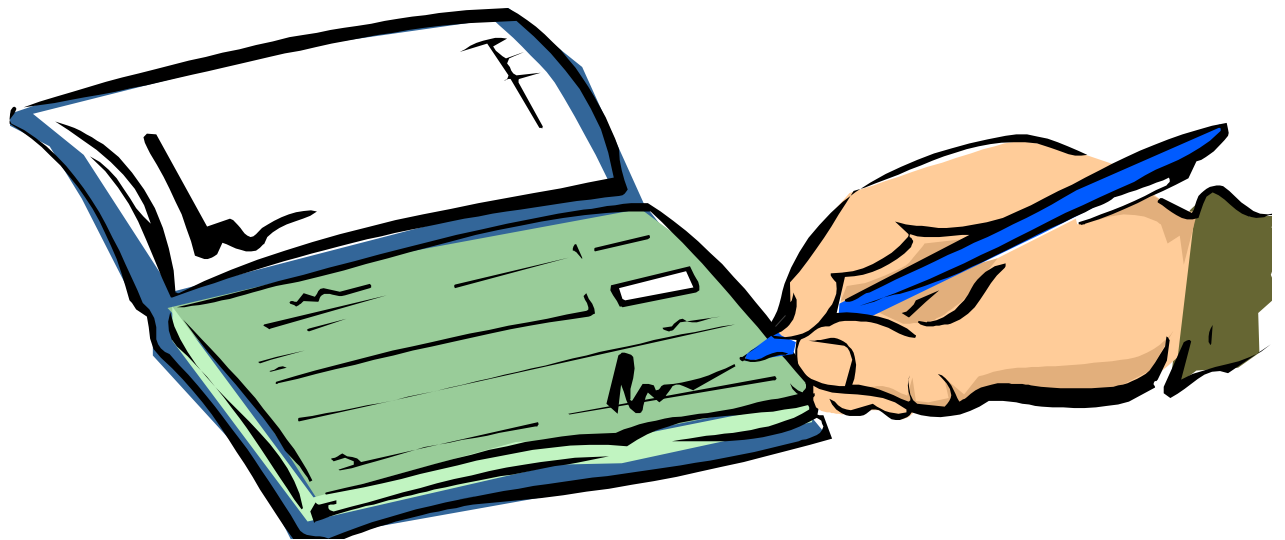
# Overview - Executive View



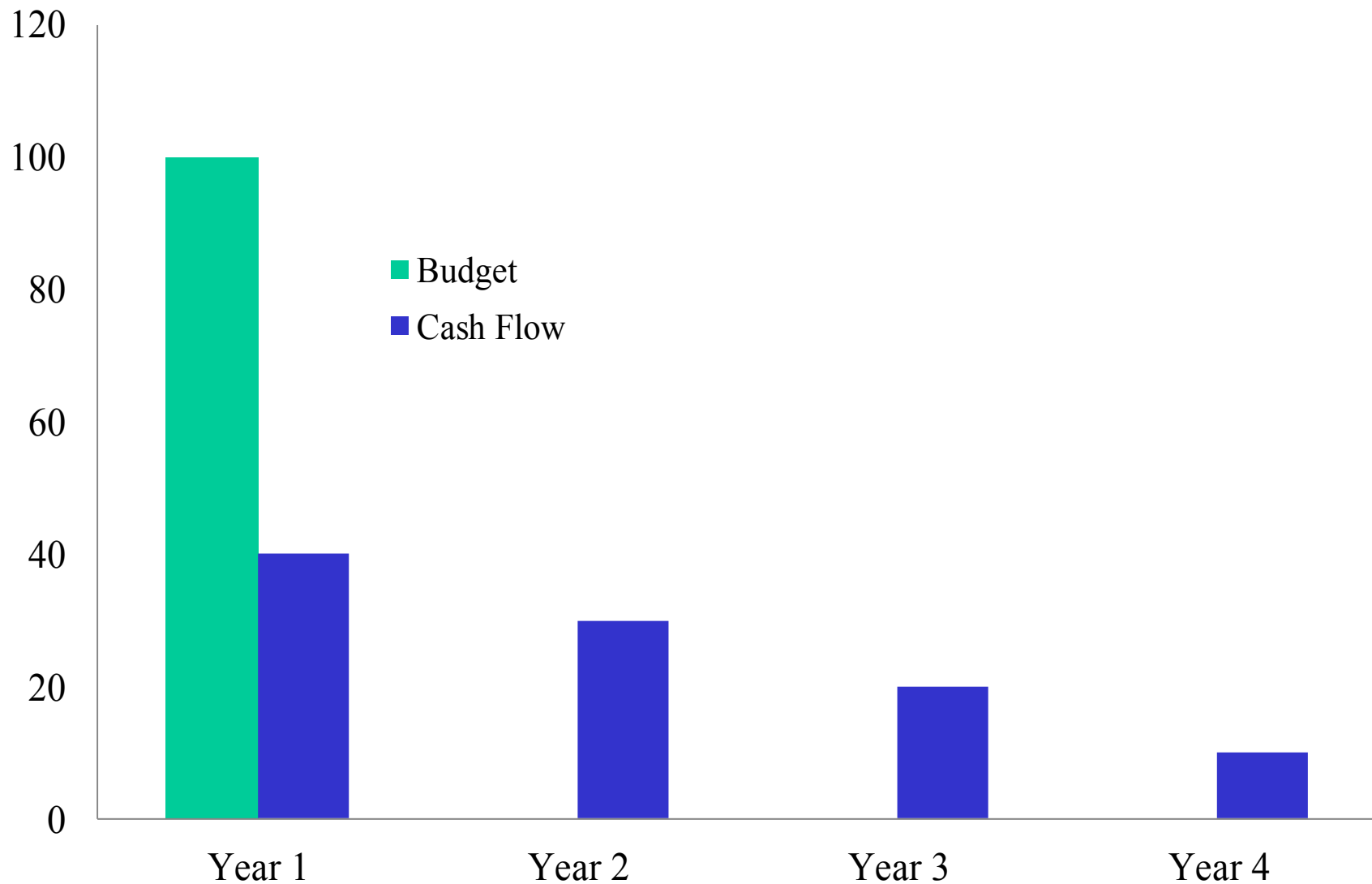
# Overview – What is Cash Management?



Automating Our  
Business Practice and  
Collective Knowledge



# Overview – Budget vs Cash Flow



# Overview - Background

- 2002 Session SB1005 §27.73 Created Financial Management Policy:
  - Authorized combining Highway Fund & Highway Trust dollars to maximize program delivery
  - Authorized Cash Flow Basis of projects to be programmed, awarded, and paid over time
  - Required the establishment of management controls & forecasting procedures
  - Established cash target equivalent to 12% of anticipated revenues plus estimated Powell Bill allocation
- NCGS §143C-6-11 – Established cash balance floor equivalent to approximately 5% of anticipated revenues

# Overview - Development

## Originally Developed by Consultants

- Developed in 2003 and tested for 12 months

- Used Only NCDOT Data

- Originally 12 month Outlook

- Annual “Target” and Historical Monthly “Payout Curves”

## Enhancements by NCDOT

- Added 36 month as well as 5 and 10 year Outlook

- Added Benchmarking Testing

- Added TIP Project Database Capabilities

- Added Modal, ARRA and NCTA Modules

- Added Scenario Evaluation Capabilities



# Overview – Development (continued)

## Platform

Runs Entirely on Excel and Access

## Process

Forecast Revenues

Forecast Expenditures Using:

State Budget

Operations Plan

TIP Let List

Directives (Federal, State and in-house)

Monthly Updates Using:

Financial Statement

TIP Contract Award Information

TIP Schedule Changes

## Process (Yearly)

Update Payout Curves

Review Each Module

Make Enhancements as Needed

# Models – Construction Payout

Not All Project Payout Equally

Influencing Variables:

Award Amount

Award Date

Project Type

Forecasting Equation 
$$\sum_1^N C_i = g + h_1 N + h_2 \sum_1^N B_i + h_3 \frac{\sum_1^N D_i}{N} + h_4 \frac{\sum_1^N T_i}{N} + h_5 M$$

$C_i$  **Contract** forecast in a given month of all active contracts

$N_t$  **Number** of active contracts, i.e. contracts under which payments are made in a given month

$B_i$  **Size**, i.e. the award amount of each active contract  $i$ .

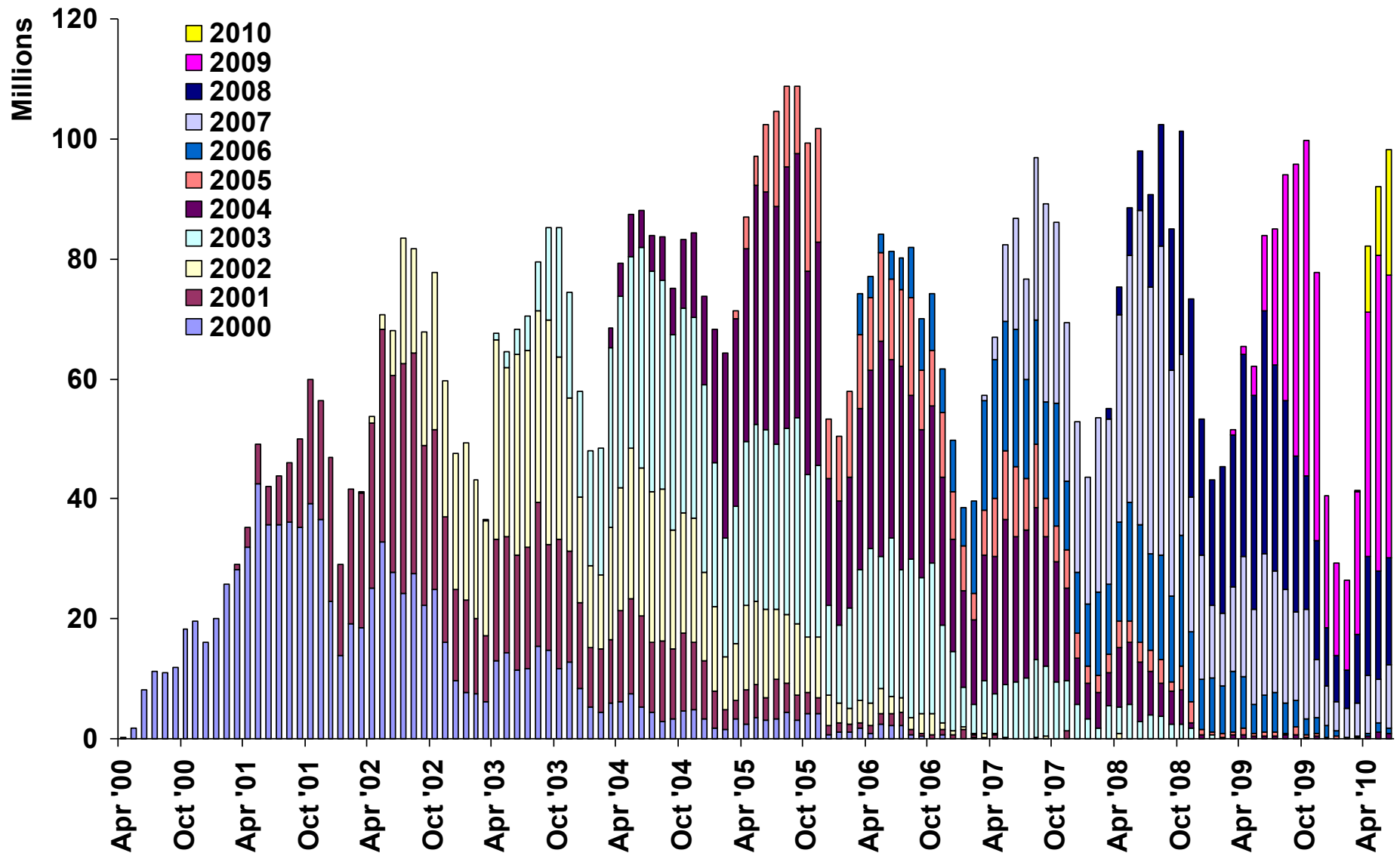
$D_i$  **Duration**, the time allowed to complete each active contract  $i$ .

$T_i$  **Age**: time since construction began, divided by duration, for each active contract  $i$

$M$  **Season**: month of the year

$g, h_1, h_2, h_3, h_4, h_5$  - **Coefficients**: of equations

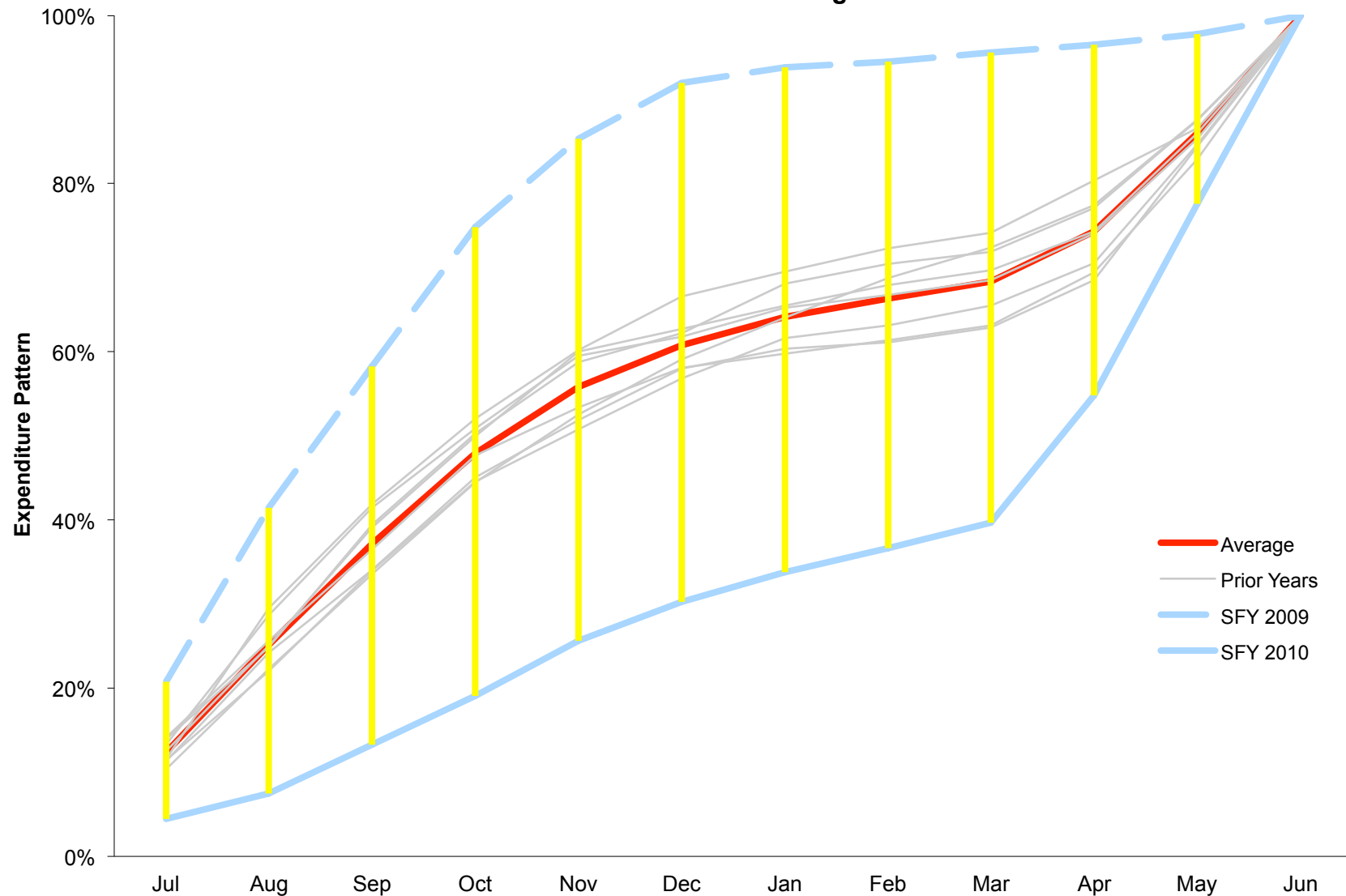
# Construction - Payment History by Let Year



# Models - Maintenance

## Contract Resurfacing

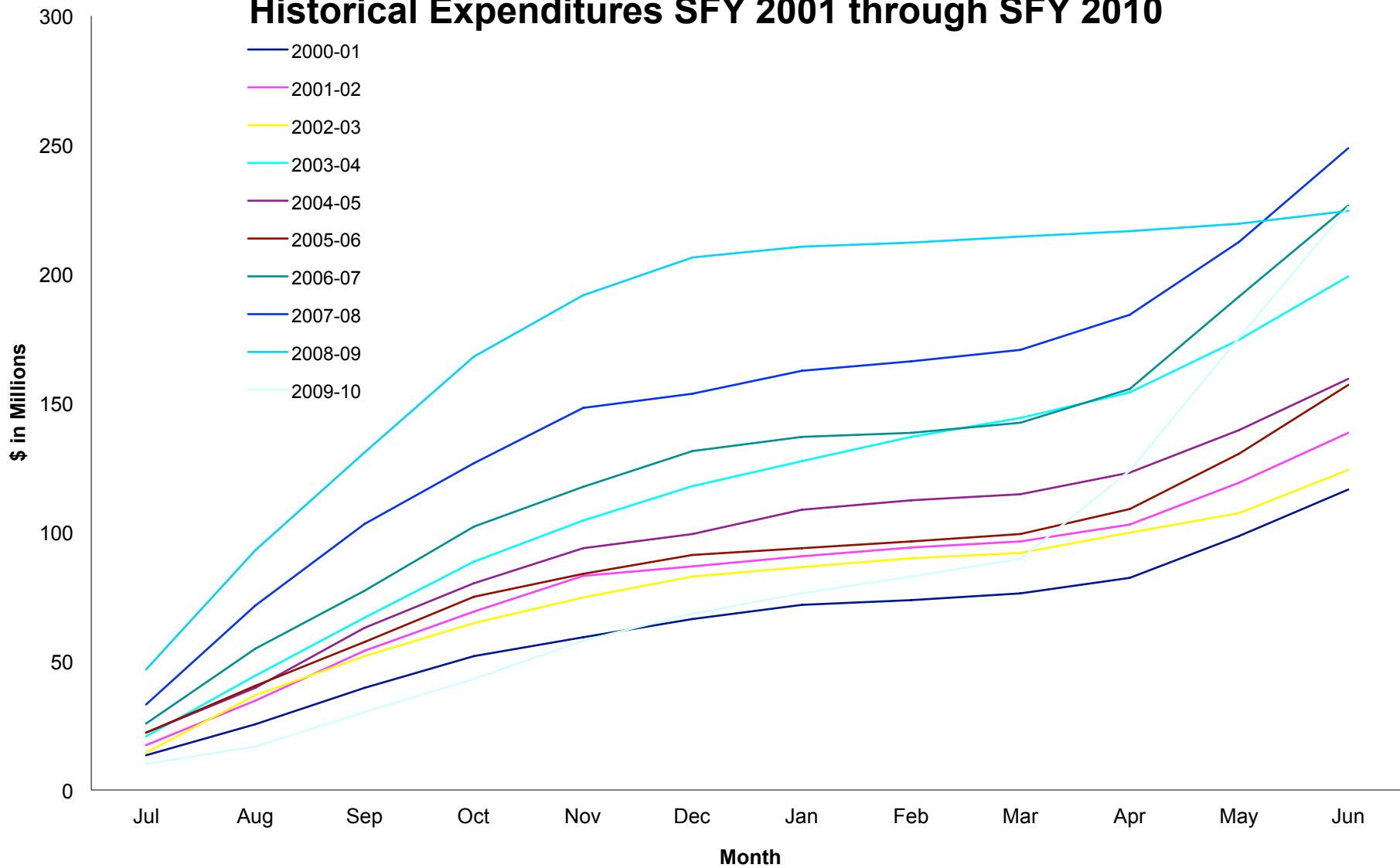
Historical Distribution SFY 2001 through SFY 2010



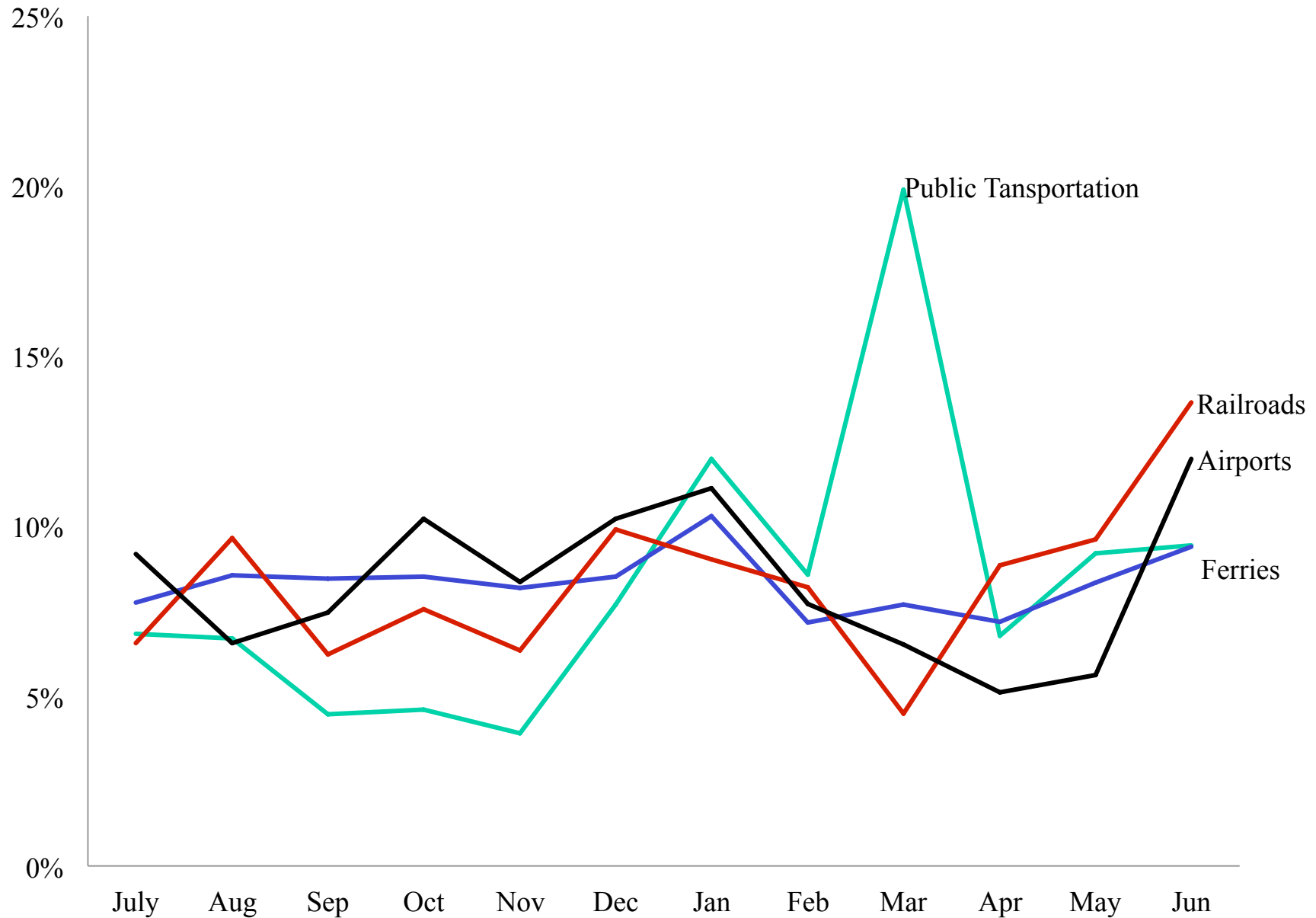
# Models – Maintenance Cont.

## Contract Resurfacing

### Historical Expenditures SFY 2001 through SFY 2010



## Models – Modal (Average Monthly Distribution)





# Project Letting Summary

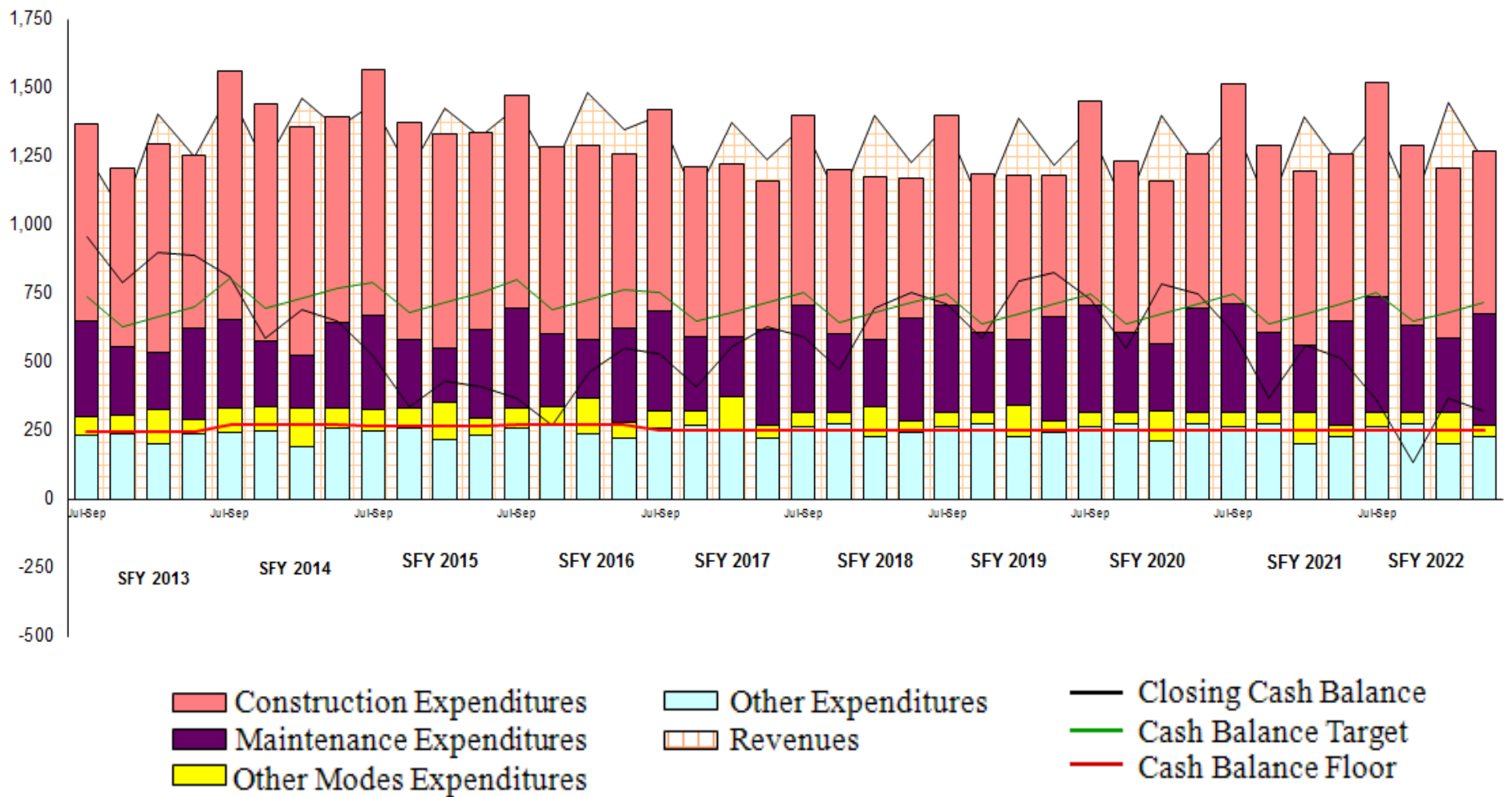
Begin Delay   
Delay Months

## Letting Scenario Let List Summary Information

(State Fiscal Year Historical and Projected - Cost in Thousands)

Division	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	375,050	116,015	685,810	15,800	281,450	65,650	75,300	108,330	20,850	54,491	25,901	231,914
2	47,495	85,820	12,596	121,075	191,800	47,650	102,025	46,150	34,650	74,324	11,361	7,557
3	27,468	133,600	337,615	48,850	15,100	111,150	9,800	22,470	18,725	58,890	12,638	212,620
4	237,403	18,945	27,150	20,305	27,500	6,075	12,025	203,400	17,400	8,729	6,578	10,587
5	34,914	147,870	20,975	300,560	23,000	147,035	173,400	17,485	15,050	58,973	127,413	13,958
6	112,597	176,370	167,000	43,050	67,350	7,500	96,525	53,670	5,625	41,007	15,951	23,027
7	193,115	89,908	193,912	251,225	73,875	149,275	16,495	217,610	18,100	58,491	27,471	139,752
8	39,386	83,225	8,000	325,200	30,549	6,350	15,675	146,450	5,325	90,702	18,072	7,654
9	53,835	162,423	19,172	167,534	36,750	35,730	46,350	18,235	76,725	15,421	17,249	52,451
10	652,957	238,750	153,725	115,245	43,150	3,750	299,150	57,900	144,225	21,700	107,350	27,310
11	98,083	66,724	28,625	1,325	87,750	102,470	46,475	13,750	96,200	25,660	27,830	84,550
12	854,941	42,762	710,200	2,100	172,500	29,700	45,650	95,425	20,800	49,760	8,800	378,830
13	28,335	18,595	70,975	18,355	62,200	23,500	44,800	28,200	317,305	176,930	16,115	17,370
14	31,720	76,638	23,750	31,275	57,415	10,500	45,200	259,350	61,370	115,950	10,170	46,030
18												427
19		1,290										

Month	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
July	351,171	86,311	205,131	274,400	71,065	1,025	3,400	17,285	20,625	107,050		
August	40,519	261,669	187,926	147,800	191,649	9,150	3,000	59,950	3,950	19,500	98,000	76,000
September	73,591	94,620	400,780	75,100	93,800	13,050	312,675	261,010	41,250	67,300		
October	51,648	73,266	1,301,312	225,359	77,425	137,500	138,050	194,905	118,475	153,100		
November	710,730	104,059	30,875	277,000	27,875	43,225	18,400	7,255		2,100	7,200	
December	12,795	148,700	55,725	145,875	19,350	62,850	51,350	5,425	149,090	12,525		
January	292,803	324,265	9,825	29,085	336,575	108,725	63,300	158,550	172,450	187,829	183,699	662,567
February	135,986	83,735	6,950	86,350	86,100	75,810	24,925	66,550	79,000			
March	64,588	12,590	5,975	88,080	113,275	85,575	104,675	40,000	43,560	2,100		38,770
April	41,933	78,615	107,175	21,000	46,475	17,150	100,750	388,375	137,500	197,324	144,000	427,000
May	47,001	162,585	118,825	1,100	4,750	121,910	146,250	51,820	76,600	17,000		
June	964,536	28,520	29,006	90,550	102,050	70,365	62,095	37,300	9,850	85,200		49,700





# How Does it All Fit Together

